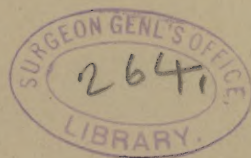


PORCHER (F. Peyre.)

method of managing Typhoid fever.



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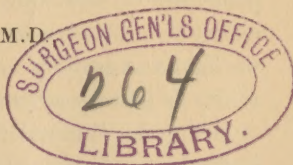
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METHOD OF MANAGING TYPHOID FEVER.

By F. PEYRE PORCHER, M.D.
CHARLESTON, S. C.



It is not our purpose, Mr. President, to enter into any refinements regarding the nature, causes, or pathology of typhoid fever,—our object being simply to describe the expedients used to secure what we consider to be a very low mortality rate in the management of this disease. Only the cases treated in private practice during the past few years will be considered, and the method briefly indicated which has proved sufficiently satisfactory to warrant us in continuing to employ it, until such time as we shall be able to engraft new methods or new agents—if any shall be shown to be more efficient.

None of the many hundreds of cases derived from the several hospitals, civil or military, over which we have had control for many years, will be included; because we consider it difficult to draw accurate conclusions from this class: on account of the disturbing elements which affect them—the late periods at which many are admitted—the occasional want of regularity in the nursing and attendance—which are likely to modify the results unfavorably.

We may also touch briefly upon an important subject, namely some of the fallacies connected with the calculation of percentages, and the erroneous conclusions derived therefrom—which are to the detriment of true progress in the art of medicine. And now you will permit us to express much diffidence in bringing this hackneyed theme before an assembly so specially learned and experienced as this. How shall we invest it with sufficient interest, or make it useful or attractive? Some very exacting engagements, which could not be set aside, have claimed our attention and prevented the collection of material which might have been more worthy of your consideration.

However, there are for us *nulla vestigia retrorsum*, and being con-

vinced that if in the treatment of thirty cases of typhoid fever in succession—none having been selected and none excluded,—we can report all recovered save three (with some after-reprisals to be made regarding these), the plan of treatment seems to be highly satisfactory, and this will furnish a basis for our remarks. Besides: the general principles of treatment applied in this disease, have been found, with a very few modifications, applicable to other classes of fevers in which we have successfully used them in numerous instances;—so that their utility is thereby *greatly* extended.

It may be objected that a fraction over nine per cent., in so limited a number, is by no means unexampled in the practice of others. Admitting this to be true, we hold: that when we consider the unforeseen accidents that are always likely to accompany cases of typhoid fever, careless or imperfect nursing and attendance, the very late stages at which some of them are seen, the dangerous intercurrent complications that often arise, the previous ill health, or want of constitutional stamina, in certain of the subjects attacked,—that these considerations should, in our opinion, make us *satisfied* with adhering to any plan of management which secures a mortality of less than ten per cent.; and that every one should be content to allow this to remain as the recognized standard of success.

“Dead men,” it is said, “tell no tales,”—but this is not strictly correct, for they give forth most decided post-mortem utterances, which are often appealed to; and it is incumbent upon *us* to see that they speak the *truth*, and in no wise injure the living by their funest revelations. We trust, therefore, that you, and others, will explain and modify your own death-rates, not timidly, and with hesitation,—but as a matter of justice and equity to yourselves—whenever it can be done consistently with scientific truth.

The method adopted by us is told in a few words. If it has the air of too great simplicity, and the separate elements have at various times been used by others, we have the satisfaction to know that it shares the former peculiarity, if no other, with that of the second Jenner—whose treatment of typhoid fever is marked by this quality in its severest type.

At this point we desire to make a remark which may provoke discussion: It is the expression of our belief that all fevers are ushered in by costiveness—the bowels being inactive and torpid: because the

secretions of the glandular apparatus of the intestinal canal are arrested by high temperature; or, at any rate, by that complex, much discussed, and almost inexplicable condition known as *fever*.

Anxiety, fear, and the depressing emotions stimulate powerfully the intestines and the renal organs. But these are not in sufficiently active operation at the *beginning* of attacks of typhoid fever to cause diarrhoea; whilst, on the contrary, these emotions arrest instantly the secretions of the salivary glands;—upon which is founded the East Indian method of detecting the thief, because the rice placed upon his tongue remains unmoistened; or the Latin poet (and the poets, Virgil, Shakespeare, Horace—indicate by their writings that they were very subtle pathologists,) his account of the terror inspired in the breast of the Trojan leader when upon his visit to the infernal regions, and ushered into the presence of the “sheeted dead” “his tongue clave to the roof of his mouth”—“*vox hæsit faucibus*.” The poet, with fine pathological insight, tells us that his mouth and tongue were *dry*!

Doubtless, as is the case with others under like circumstances (though *his* position may be regarded as somewhat unique), the soldier in his first battle, or any one exposed to great peril—the other physiological effects of fear were not wanting. But the bard,—to whom Dante (“*Inferno*,” Canto IV.) ascribes unbounded culture and knowledge,

“O tu, che onori ogni scienza ed arte”—

with true æsthetic taste, refrains from further particulars regarding the condition of his hero.

It may be that in the disease under consideration—albeit the emotions cited above are not sufficiently active at the initial stages to excite the intestinal glands,—some cases of highly nervous or sensitive organization may begin with diarrhoea, as some authors affirm. Such, however, is so far never our experience in any case of fever, whatever be its character. There is always an *arrest* of glandular and intestinal action shown by costiveness; and a mild laxative (a mercurial being preferable,) may be, and generally is, advisable at the beginning of the attacks of typhoid fever,—just as it is beneficial at the inceptive stages of nine-tenths of all other fevers.

Whether or not we use opening remedies then; after this period, three things are admitted absolutely to require attention. Of these, two are recognized by everyone to be essential:

1st. The keeping up the nutrition of the patient by suitable food,—the necessity for which increases as time advances, and the vital powers and nutritive functions become enfeebled.

2d. Support by stimulants—which are more especially required when from impairment of the blood and degeneration, fatty or otherwise, of the muscular tissue, the innervation of the brain and heart becomes imperfect; then alcoholic stimulants are needed to give temporary support, sustain the powers of life, and thus enable the enfeebled subject to tide over the danger, and survive the perils which lie within him. It is *he* only who, thus supplied, is assisted to cast out his disease, and very slowly, it may be, regain life and strength.

The two indications just cited are mentioned simply because they are important elements in our own line of treatment; and all are agreed that their judicious use is essential to preserve life and reduce the mortality.

The third dominant fact generally admitted to comprise an important morbid condition, is high temperature: which leads to combustion, retrograde tissue metamorphosis, with its widespread and deep-seated attendant evils, namely: impairment of function, deterioration of the blood and the muscular and other tissues, with loss of innervation, and its paralyzing effects upon the glandular secretions, the brain, intellect, etc.

How do we propose to meet and subdue this third element of danger which, if unrestrained, reaches the height designated as hyperpyrexia, and which is destructive precisely in proportion to its intensity and duration?

Russell, in his war correspondence, describing a charge of the Cuirassiers of the Guard of France, says, in his usual style of tranquil energy, "Their squadron leaders rode straight to death!" As directly, and not less inexorably, do continued high temperatures in typhoid fever lead to the same fatal end—to albuminuria, delirium, coma, and death. So, whatever a few observers may have asserted regarding the innocuousness of this "fever heat," we disagree wholly, and declare our firm belief that it is essential that we make incessant efforts to keep it down.

As in yellow fever, the high temperature of the first ten hours added to an insidious quality peculiar to this hæmagastric pestilence, leads to black vomit; but if restrained in time—and this can be done

in all fair cases, as we know after extensive opportunities for observation,—there can be no liquefying of the blood, and its subsequent ejection after it has been acted upon by the acid juices of the stomach—and the patient must recover; so in typhoid fever the danger is the same, though less imminent, on account of the intrinsic difference in the pathology and normal duration of the two diseases; just as in intermittent and remittent fevers there is less danger than in continued—not only because of the frequent pauses in the pyrexia, but on account of the fact that in continued fevers there is always, as we believe, another element of danger, namely, gastro-intestinal or other irritation—which indeed constitutes the essence of all fevers which are “continued.”

How shall we restrain this fatal pyrexia always within the safety limits, namely, below 102° or 104° . Our method—which secures against a mortality of more than nine per cent. and a fraction—is as follows:

Two agencies are employed: one external, the other internal, and both equally essential.

Applications of ice-cold water to the head, hands, and arms.

These applications are of the first necessity, and are repeated whenever the temperature rises, day or night, if hundreds are needed. They are troublesome, we admit, and to be efficient must be done rigorously and systematically after the following method, when they become an extremely powerful agency for good.

If you exclaim that cold has been applied in medicine from the earliest periods (though Playfair asserts that no one in Europe took a bath for 500 years), or, at any rate, since Curry wrote his book,—we reply, that though cold water be the most valuable therapeutic agent in nature, yet the success of any remedy greatly depends upon the manner in which it is administered.

1. A soft towel folded is soaked in a basin of iced water, then wrung out and applied over the forehead and temples.

2. The palm of one hand and the arm are “sponged off” with another towel, which has been dipped in the cold water, and wrung out.

3. The towel which has been left upon the head is turned, and reapplied, so as to have the cold surface next to the skin.

4. The other hand and arm are treated as was the first.

This process, strictly followed, is continued for fifteen, twenty, or thirty minutes; or until such time as the surfaces have become thoroughly cooled and blanched, when it may be discontinued—to be renewed whenever there is a rise in the surface heat. Sometimes, if it does not cause fatigue, both hands and arms, if hot and dry, are allowed to remain submerged, or be bathed directly in the cold water.

We have, for many years, practised and urged upon others this method of applying cold water in every variety of fevers accompanied by high temperatures. It has much to recommend it: it is easily used and not easily abused; is within the reach and means of every one, excites no opposition on the part of patients or their friends, and is most efficient in restraining fever-heat within safe limits. Those who have never employed iced water assiduously in this way would be greatly impressed by its effects. We have found it to reduce temperatures of 107° and 108° in several cases of malarial fevers brought from the Ashley River and the phosphate grounds, and treated in the City Hospital. Dr. P. G. De Saussure, one of the house physicians, was present when all these cases recovered. We use it as an auxiliary in the reduction of temperature in all fevers, including yellow, malarial, gastric remittent, and scarlet fevers. The proofs of its efficacy are contained in special publications upon the subject; and notably articles on "Yellow Fever," *Charleston Med. Journ. and Review*, first and second series; "President's Address," *Trans. South Carolina Medical Assoc.*, 1881; "On Gastric Remittent Fever as a Distinct Disease," *Amer. Journ. of the Med. Sciences*, Oct. 1881, etc.

Larrabee's ice coil, or Riegel's ice-bags, may, of course, prove equally, if not more efficient. If others can provide Kibbe's cot, or follow the recent teachings of Prof. T. G. Thomas, they will have additional authority; for now our distinguished friend has become a very enthusiastic believer in the merits of cold water—even in gynecology, and Sir Spencer Wells has preceded him in this matter;—he would even abandon the practice of his profession if forbidden by law to resort to cold water.

Or if they, or others, can readily and repeatedly transfer their exhausted typhoid fever patients into full baths; or induce them to submit to the frequent wet-pack—we have no objection, as they must prove beneficial by abstracting caloric very powerfully; but practically such expedients can never become popular—being either too

expensive, cumbrous, difficult to procure or to apply,—or worse than all, they run counter to popular prejudices.

We should not omit to remark that the method of employing cold herein recommended, may be associated to great advantage with “sponging” the body and lower extremities, whenever they are hot and dry, with vinegar, or alcohol, and water—as hot as can be borne.

The next most important auxiliary in the management of typhoid fever,—and what we regard as truly essential in every other fever—is what may very properly be entitled a “Fever Mixture.” This is unirritating, safe, and an admirable compound which admits of variation as regards its constituents, and the amounts required to suit varying conditions and cases. It is composed somewhat as follows:

| | |
|--------------------------------------|-------------|
| R.—Spiriti ætheris nitrosi | ℥ss. |
| Potassæ acetat. | ℥j vel. ij. |
| Potassæ chlorat. | ℥j. |
| Liquor ammon. acetatis. | ℥j. |
| Tinct. aconiti | ℥ss. |
| Tinct. opii camph. | ℥ij-iiij. |
| Aquæ | ad. ℥iv.—M. |

Sig.—Dessertspoonful every two or three hours as long as there is fever.

Potassium bromide, or morphia, may be added if there is great restlessness or want of sleep. In an inflammatory fever like pneumonia the nitrate or bicarbonate of potash may be substituted for the chlorate, because they are more powerfully catalytic; and the tincture of digitalis or veratrum viride may take the place of the tincture of aconite.

This is undoubtedly a most efficient prescription, and capable of general application to the reduction of all fevers. We have used it in hospital and private practice habitually for very many years; and cannot comprehend how any physician engaged in the daily practice of his profession can do without this, or an analogous formula. Given to children with fever, and accompanied by cold applications to the head and hands, and hot mustard foot-baths, it prevents the delirium occurring so commonly at night, which is sometimes erroneously ascribed to inflammation of the brain; but which is solely owing to the temporary irritability caused by heated blood circulating through the brain at this sensitive and excitable period of life.

The truth is: that a summary of the treatment of all the forms of fever,—with certain easily applied modifications to suit the varieties—

can be put in a *nutshell*: An "alterative" laxative powder at the beginning; cold applications to the head and to the upper extremities; hot stimulating pediluvia; fever mixtures as an *internal* aid in reducing temperature; and quinine, or arsenic, if a malarial element exists.

This "alterative" laxative powder is applicable to almost every case where torpor, or constipation of the bowels exists, and opening medicines are required. By its use, you avoid all possibility of superpurgation—whether in children or adults: for the directions which accompany it, are: "That it be given in syrup, every four or five hours, till it acts;"—after which it will have accomplished all the purposes for which it had been given. The intelligent therapist, who examines the prescription carefully, will recognize in it a combination of the most commonly used and useful ingredients; and he will see why it is beneficial and of almost universal applicability for the purposes intended, namely: for the costiveness which we have stated characterizes the initial stages of nearly all fevers,—or wherever else this condition exists. It is prepared as follows:

| | | |
|--------------------|-----------|----------------|
| R.—Magnes. calc. | | gr. xv. |
| Rhei pulv. | | gr. ij to iij. |
| Ipecac. pulv. | | gr. ʒ. |
| Hydrarg. chl. mit. | | gr. ʒ to j. |
| Sup. carb. sodæ | | gr. iv. |

The rhubarb and calomel to be increased as desired.

Sig.—One to be taken every four or five hours until they act.

A remarkable paper has been published in the *British Practitioner*, by Dr. Leighton Kestiven, of Queensland, in which he reports rather marvellous results, namely: 224 cases of typhoid fever treated with only 4 deaths! The formula used by him, as deduced from his article, though he does not present it verbatim as such, is as follows:

| | | |
|---------------------------|-----------|---------|
| R.—Oil of eucalyptus | | 3v. |
| Arom. spirits of ammonia, | | |
| Spirits of chloroform, | | |
| Glycerine | | aa ʒij. |

Sig.—A teaspoonful every four hours in a wineglass of water.

He also associates cold applications with the above.

We adopted his formula in the last four cases, given alternately

with the fever mixture. None of these had a longer duration than twenty-five, and two of them were free from fever in fifteen days.

We have also given in nearly every instance, quinine (two grains three times a day) because of its tonic and antiseptic qualities. The quinine was generally associated, after the first week, with aromatic sulphuric or nitro-hydrochloric acid, in ten drop doses, on account of the special adaptability of acids in this disease after it has made some progress. A general principle underlies this, for we think it may be regarded almost in the light of an axiom that alkalies suit early, acids late periods of the disease.

We have never approved of the use, nor seen the necessity for the thirty grain antipyretic doses of quinine—though such have been frequently ordered by the house physicians in our hospital cases.

So far as our reading extends, authorities generally have laid singularly little stress upon a most important indication for the treatment of the stage of the disease characterized by dry tongue and sordes, with low and muttering delirium;—which very few of our cases reached and which we, of course, ascribe to the preventive influence of the treatment used.

Alcohol is no new remedy in the later stages of typhoid fever; but we declare that the positive indication in these conditions is for the *very free use* of stimulants, together, with the application of revulsives (emplastrum cantharidis) to the back of the neck, where cerebral complications, delirium, etc., are marked. We affirm that almost unrestricted discretionary powers may be left with attendants and nurses to continue stimulants *as long as the tongue is dry*;—because this depends upon the same depressed condition of the nervous and ganglionic centres which control the secretions of the oral and gastrointestinal surfaces by which glandular action is diminished or arrested, and stimulants are absolutely essential:—just as, at this stage, they strengthen and slow the weak, excited, and rapid pulse resulting from the general degeneration and impairment of the integrity of the muscular, nervous, and circulatory systems—including the blood.

A certain amount of irregular treatment intended to meet the usual complications—what may be called skirmishing—has to be done in a disease like this. We will, therefore, briefly include under this head some remedial agents employed by us most satisfactorily in certain contingencies which arise during the course of this disease.

The oil of turpentine, for example, is employed by all physicians for the tympanites which occurs during the progress of certain cases; but we should be careful never to forget or ignore this remedy, because it is applicable to *four* separate morbid conditions which often accompany this disease during its later periods, namely: 1st. Tympanitic distention, just mentioned, resulting from perverted conditions of the mucous and secretory surfaces of the intestinal tract, which this remedy relieves—given internally or applied externally.

2d. It is a general as well as a special stimulant, and therefore applicable at this stage of general depression.

3d. Being possessed of astringent or styptic properties, with opium, it prevents or arrests hemorrhages from the intestines, kidneys, or bladder.

4th. Combined in the form of a mucilage with the carbonates and chlorides of ammonium, it is one of the best remedies for the irritation, or inflammation of the bronchial tubes in cases where these organs are affected.

To relieve the severe broncho-pneumonia occurring at later stages of the disease accompanied by thick sputa, sibilant râles, etc., the following was found to act admirably:

| | |
|-------------------|-------------|
| R.—Vini ipecac. | 3j. |
| Ammonii chlorid. | 3iij. |
| Ammonii carbonat. | 3ij. |
| Syrup. simplicis | 3j. |
| Aquæ | ad. 3vj.—M. |

Sig.—Dessertspoonful every two hours in a wineglass of water

With this, added to the use of an oil-silk jacket, the temperature which had reached 104° fell to 99° in three days.

We have found cotton batting applied over the entire surface of the chest, this covered with an oil-silk jacket, to be most efficient additional means in the broncho-pneumonia of typhoid fever. Its use and value were learned from the clinical lectures of Prof. Chandler Gilman, at the College of Physicians and Surgeons of New York, in 1847. He recommended the oil-silk jacket principally in the pneumonias of children.

For the albuminuria which occasionally occurs, we have found two grains each of tannic acid and quinia, given three times a day, the best remedy. For nausea and vomiting, drop doses of the wine of

ipecac, frequently repeated—not omitting the crushed ice to which everyone resorts, and the following, prove very efficient :

| | | |
|--------------------|-----------|---------|
| R.—Acidi carbol. | | gt. j. |
| Glycerin. | | 3j. |
| Tinct. opii camph. | | gtt. v. |
| Ess. menthæ pip. | | gtt. v. |
| Chloroform. purif. | | gtt. v. |

Given in muc. acaciæ q. s., at one dose and repeated.

We ascertained that carbolic acid, gtt. ij, and the tincture of iodine, gtt. v, in syrup, invariably reduced the temperature in less than an hour ; but did not shorten the duration of the disease.

Colden's liquid beef tonic was ordered with excellent effect as a stimulating and nourishing tonic, with nutritive enemata of peptonized beef ; to which, if diarrhœa coexisted, tincture of opium could be added. During convalescence, we employed also the infusion of German chamomile (*matricaria*) and Huxham's tincture of cinchona.

In conclusion : we would not cover our own deficiencies by excuses, nor palliate them by special pleading ; yet how often are unsifted statistics thrown into our faces, and we are asked to abandon a plan of treatment, whatever may be its real merit, because mere figures have declared against it. We are reminded of the “unreal mockery” and the “horrible shadows” which existed only in the fancy-crazed brain of Macbeth—and which vanish before the light of reason, or the examinations of science.

We venture to predict that the time will come when the record of a death occurring in his practice will not always be charged against the physician as a unit in the calculation of results ; but will take its place only after the closest scrutiny, as one of the factors—with its true value assigned—in making up the final equation.

With regard to our therapeutical responsibility for the fatal cases : If any could be shown to be beyond the reach of art, it would be absurd and foolish in a philosopher or a logician to allow such to vitiate his statistics—whence he honestly hoped to derive instruction. Besides : if we can reduce the mortality to two or three per cent.—and we believe that our mortality was virtually not so high, the success of our method is established upon a much more solid basis.

But our time is expired. Did it permit, we are confident that by a very brief relation of one of the fatal cases, you would, after a judicial examination, be convinced that such a one should not enter as a disturbing element in a close statistical calculation without an equitable allowance being made for it; and *you* would be the first to “quote Greek,” and to declare *ιατρος ιαται θανατος*—“The physician who healed was Death!”

Of another, we might justifiably have given the certificate, after the example of the celebrated Dr. Rush, in whose handwriting a label is said to be preserved at the Blockley Hospital attached to the record of a patient—cured of his dropsy, but perishing by an intercurrent malady—inscribed with these words: “Died, *cured*!”

DISCUSSION.

DR. JAMES TYSON, Philadelphia.

I have been much interested in Dr. Porcher's paper, more particularly with reference to what he has said as to the reduction of temperature, for I have recently had a case which has tried to the utmost my own resources in this direction. What ultimately seemed to accomplish the object most satisfactorily was the wrapping of the entire trunk of the patient in towels kept constantly wet with ice-water. This is, perhaps, the best method in a case of this kind requiring continuous treatment. The temperature was taken hourly, and whenever it reached 103° the ice-water was renewed. Both antipyrin and thallin were tried in this case. Antipyrin in fifteen grain doses reduced the temperature two degrees in less than an hour, but it had the disadvantage of producing an unpleasant and somewhat alarming chilliness. A smaller dose soon lost its effect and became practically useless. The same can be said of thallin, which I gave in a dose of four grains. In half an hour it reduced the temperature two and one-half degrees. This, however, was accompanied by such chilly feelings, and the moral effect was so bad on those about the patient, that I feared to repeat it in the same dose. I, however, repeated it in two grain doses, with about the same effects, but, as with antipyrin, the temperature soon returned to its original position. I then resorted to the use of towels wrapped around the patient, and kept wet with ice-water in the manner described.

So far as my own experience goes, therefore, I agree with Dr. Porcher that this is the best means of reducing the temperature where it is necessary to keep it continuously reduced. This is virtually the cold pack. The legs

were not included in the application in my case, because I did not consider it necessary; they were sensibly cooler than the middle portions of the body.

DR. JAMES T. WHITTAKER, Cincinnati.

We should not lose sight of the fact that elevation of temperature may be the natural way of getting rid of the cause of the disease. The bacilli of typhoid fever, as recently shown by Eberth, are attenuated by heat. The bacilli of typhoid fever have been successfully cultivated and inoculated, and it has been found that after the exposure of the bacilli to heat the disease could not be produced. The question now becomes pertinent whether the changes formerly attributed to heat may not be due to the bacilli. Until pathologists clearly prove that the parenchymatous changes attributed to a high temperature are really due to it, may it not be wise for clinicians to call a halt to the extreme methods of antipyresis?

DR. F. T. MILES, Baltimore.

We should not forget, in this connection, the cases in which the disease has run its course with a normal or subnormal temperature, yet ended fatally.

DR. E. DARWIN HUDSON, New York.

Previous to three years ago, when I assumed my service at Bellevue Hospital, I had been accustomed to treat typhoid fever with quinine and antipyretics; but I found in vogue there a simple method of treating typhoid fever, the success of which was so remarkable that I abstained from any modifications or suggestions. I am convinced, after following it for three years, that in the class of poor pauper patients with typhoid fever there treated, the recoveries are more numerous, and the complications and sequelæ fewer, than in the practice of many physicians whose patients are more fortunately situated in life. The treatment is almost negative. It consists in sponging the patients every two hours in the period of elevated temperature (above 102.5°), and an absolute milk diet. The only other treatment is the treatment of the special symptoms as they arise. Even where the temperature continues above 103° or 104°, we have not resorted to the use of ice, bathing, or any other method, except that of keeping the patient on a rubber sheet with a muslin sheet over it, and with a sheet over his body, and sponging him every two hours.

With the milk diet, our experience has been most remarkable, not only during the period of active fever, but during the period of convalescence. We have known patients who were doing well on an absolute milk diet, in whom we have been able to detect, by the suddenly elevated temperature, and verify by inquiry, that they had been given, in violation of rules, something which they should not have had. I am sure that the treatment with sponging and milk diet will bear comparison with any other plan of treatment.

DR. SAMUEL C. CHEW, Baltimore.

It appears to me that the line of treatment suggested by the last speaker, and which he has described as negative, cannot be so considered. If the temperature of the water is lower than that of the body, it will have the effect of reducing the temperature of the body. I agree with the author of the paper in attaching much importance to the antipyretic treatment. For this purpose, I have used quinine hypodermically. It appears to have almost a specific antipyretic action when used in this way. Just as the action of morphia hypodermically is more effective and of longer duration than when used by the mouth, so it has appeared to me that the employment of quinine hypodermically is far more effective in reducing temperature than its use by the mouth. I have used a solution of the hydrobromate of such strength that twenty minims represent four grains. The use of quinine in this way is followed in a short time by a fall of temperature.

DR. FREDERICK P. HENRY, Philadelphia.

Dr. Porcher's allusion to the favorable statistics of a practitioner of Queensland, recalls to my mind a recent paper in the London *Lancet* by Dr. Pearson, of the Cape of Good Hope, who reports a series of cases treated with Labarraque's solution. In about one hundred cases there was but one death, and this was attributed to the fact that the original solution was exhausted during the treatment of this fatal case, and a fresh supply was compounded by a local chemist in what was subsequently found to have been an improper manner. The success was apparently due to the treatment, for the mortality of cases of typhoid treated during the same epidemic by neighboring practitioners was very much greater than that reported by Dr. Pearson. During my term of service at the Episcopal Hospital, beginning April 1st, I placed all the cases of typhoid fever upon this remedy in the manner directed by Dr. Pearson—fifteen drops every three hours—although I did not rely upon it exclusively. I had twenty-six cases with four deaths, and more than the usual percentage of complications. The mortality, it will be observed, was between fifteen and sixteen per cent.

In regard to the hypodermic use of quinine in typhoid fever, I can readily believe that it may be employed more effectively in this manner than by the mouth. This is strikingly true with regard to another drug—corrosive sublimate. In a case of syphilis with extensive tubercular eruption and gummata of the skin, I employed the usual remedies by the mouth with little or no result, while a resort to the hypodermic use of corrosive sublimate, at the suggestion of Dr. Van Harlingen, was speedily followed by a cure of the skin affection. I consider the suggestion of the hypodermic employment of quinine in typhoid fever to be a valuable one.

DR. WILLIAM H. DRAPER, New York.

There is, perhaps, nothing more fallacious than the statistics of mortality in typhoid fever. I believe that these statistics are misleading because it is

easy to confound cases of simple continued fever with specific typhoid fever. I am sure that it must have fallen within the experience of most of the gentlemen present to have met with cases of continued fever which, so far as the temperature was concerned, did not run the course of typical typhoid fever. They are atypical in this respect, but are usually called typhoid fever. I think that in such cases we have no adequate evidence that they are cases of typhoid fever.

It is extremely difficult to estimate the value of treatment in this disease. It seems to me that experience proves that we may readily overestimate the value of antipyretic treatment in many cases of typhoid fever. So far as my experience goes, cases of typhoid fever characterized by continued high temperature, although the temperature may be controlled by cold-water affusions, packs or baths, will in the majority of instances go on to a fatal termination in spite of such more or less successful efforts. I think that in the majority of cases the great value of antipyresis is not so much in affecting the mortality of typhoid fever as it is in contributing to the comfort of the patient. That it does this, no one who has had any experience with the cold water treatment or antipyrin can have any question. I am very sceptical as to the value of these measures in affecting in any material way the mortality of typhoid fever. This, in the great majority of instances, depends upon conditions over which simple control of the temperature has no effect.

DR. WILLIAM PEPPER, Philadelphia.

Mr. President, I wish that among the functions of this Association might become that of garnering reliable statistics. It has given me pleasure to hear the speakers allude to the worthlessness of hospital statistics in certain respects. I believe that in particular as regards the mortality of typhoid fever they are worth nothing for any good clinical purpose. We have, however, reliable statistics with reference to the normal course of typhoid fever which should make us very slow in recognizing fifteen or even ten per cent. of mortality as evidence of success from any special plan of treatment. I think it doubtful if what might be termed the normal mortality would be much above ten or fifteen per cent. Every now and then we have a series of favorable cases. I have treated one hundred and four cases consecutively without a death, and then I have treated twenty cases and lost five. I fancy that this is the experience of everyone who has treated this affection on a large scale. When we see that different plans of treatment have yielded such remarkable results, we recognize that the results were due to peculiarities of the cases and not to the remedies.

What has been said brings out clearly the different feeling which we have in regard to fever. It is a great fallacy to dwell so exclusively on the temperature as furnishing the indications for treatment. Typhoid fever without high temperature has been alluded to. We are also familiar with a form of typhoid fever with high temperature without very bad results. When we

consider the complex manner in which the morbid temperature is produced, it is clear that we have different sorts of fever in typhoid fever. A remedy highly valuable in one group of cases of hyperpyrexia may be inapplicable to other cases.

My own belief is that an excellent rate of mortality may be secured by a plan of treatment which, while not negative, is not perturbing. There should be absolute rest from the first moment of suspicion, with a rigid diet of milk or milk diluted. I believe that the abstraction of heat by the use of cold water is of great value. I also think that the use of some suitable remedy addressed to that constant and important element, the intestinal lesion, aids in preventing the development of hyperpyrexia in many cases as well as of other grave symptoms. I do not know that we can now decide what is the best remedy for this purpose, but my own preference is for the salts of silver, and especially for the nitrate. Other sedative and alterative remedies may, of course, be employed. That a remedy of this character, commenced at the earliest moment of suspicion and continued throughout the attack, does exert a beneficial influence upon the course of the case and upon the mortality, I have no doubt.

Where a case comes under proper control early, and where rest, diet, and careful treatment are instituted at once, no result which exceeds five or six per cent. of mortality should be considered satisfactory. In private practice I believe that it can be kept down to this at least.

DR. PORCHER, in conclusion, agrees with Dr. Tyson in his method of treatment on theoretical grounds, but practically it is very difficult to carry it out. In order to wrap wet towels around the trunk of a patient we must remember that it requires him to be moved. In typhoid fever the patient is generally in a very weak condition; added to this there is the difficulty of keeping the bedclothes, etc., dry, and we have, as a rule, to combat the strong objection of the patient and his attendants. All these objections were met in his method, and the results were highly satisfactory. He was surprised that no one had spoken of the value of the combined use of the fever mixture referred to by him, or something equivalent to it, in the treatment of this and other fevers.

Dr. Miles had spoken of the disease running its course without fever, but such cases were either apocryphal or so rare that they were like black swans. Such being the case, it would not do to permit them to diminish our efforts to lessen temperature, which is a disturbing element in a vast majority of cases, and which, he had endeavored to show, is dangerous in proportion to its intensity and duration.

He made use of cold water locally applied in malarial, yellow, and in all forms of fever, including scarlet fever. He believes that it adds greatly to the chance of recovery to apply it assiduously at the very inception of cases of yellow fever, as it prevents the bad results of high temperature, namely, black vomit, albuminuria, etc.

